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REMARKS

Claims 1 - 20 are currently pending in the application. By this amendment, claims 1, 4, 7, 10, 14 and 17 are amended for the Examiner's consideration. The foregoing separate sheets marked as "Listing of Claims" shows all the claims in the application, with an indication of the current status of each.

Claims 1, 4, 7 and 17 were objected to due to typographical errors. Claims 1, 7 and 14 have been amended to change the phrase, "...said surfaces..." to read "... said possible surfaces..." as recommended by the Examiner. Claim 4 was amended to change the phrase' "...an range..." to read "...and range..." as recommended by the Examiner. Claim 17 was amended to delete the second occurrence of the word "wherein" on line 1 of the claim. Claim 17 has also been amended to change the word "step" to read "means" as in claim 16 from which it depends. These amendments have been made as typographical revisions and do not constitute new matter.

Claims 1, 4, 7, 10, 14 and 17 have been rejected under 35 U.S.C. 112, second paragraph as having insufficient antecedent basis. This rejection is traversed.

Claims 4 and 17 have been amended to more correctly recite the feature upon which the claims depend. That is, claims 3 and 16 (upon which claims 4 and 17 depends) recite,

"...examining *geometrical acceptance of combinations of said possible surfaces...*"

Claim 4 has been amended to include the more specific description of the feature from claim 3. The amended claim 4 recites,

"...said step of examining *geometrical acceptance of combinations of said possible surfaces...*"

Similarly, claim 17 has also been amended to include the same specific feature description from claim 16. Amended claim 17 recites,

“...said means of examining *geometrical acceptance of combinations* of said possible surfaces...”

Likewise, claim 10 has been amended to more correctly recite the features upon which the claim depends. Specifically, claim 9 (upon which claim 10 depends) recites,

“...means for examining *geometrical acceptance of said possible surfaces...*”

and “...means for examining *geometrical acceptance of combinations...*”

The phrase, “geometrical acceptance of” was inadvertently omitted from claim 10.

Claim 10 has been amended to include the more detailed descriptive phrase “geometrical acceptance of” within the features of claim 10.

The Examiner has also rejected claims 4, 10, and 17 stating that the steps necessary for examining the geometrical acceptance utilizing the specified characteristics has been omitted and needs to be included in the claims. This is incorrect.

Claims 4, 10 and 17 depend from base claims 1, 7, and 14, respectively. The base claims state that the steps culminate in the sorting step which produces the selected embeddings as the output for reconstructing the surface geometry.

The Examiner has also rejected claims 1, 7 and 14 under 35 U.S.C. 112, second paragraph stating that it is “..unclear how these steps are executed.” This rejection is traversed.

Amended claims 1 and 7 recite, “...computer-implemented method..” and “...computer based system...”, respectively. That is, the method is computer-implemented and therefore, the steps associated with the method are implemented in a computer. The system is a computer based system using the processors and other means of a computer to provide the means for performing the various features described by the claim and is understood by those familiar with the art. Amending these claims to include the computer language is consistent with the description provided in the specification. The specification mentions the use of computers and

Computer Added Design (CAD) resources numerous times (e.g., page 4, line 28, page 5, lines 26 - 27, page 19, lines 4 - 7, etc.) Furthermore, the last paragraph on page 18 clearly states, "...the present invention may be implemented to any computer system..." Therefore, this amendment does not constitute new matter. Claims 1 and 7, as amended, with execute the steps/elements in a computer environment. Claim 14 already clearly stated that the product is to be implemented in a computer readable program. Therefore, the claims have not omitted how the steps/elements are to be executed.

Claims 1 - 19 have been rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. This rejection is traversed.

As shown in the amended claims and discussed above, the present invention is drawn to a computer-implement method, system, and program. Independent claims 1 and 7 have been amended to highlight the computer implementation and the presence of a computer. Claim 14 as originally filed claims a computer readable program product.

Claims 1 - 3, 5, 7 - 9, 11, 13 - 16, 18 and 20 have been rejected under 35 U.S.C. 102 (b) as being anticipated by Bagali et al., "A Shortest Path Approach to Wireframe To Solid Model Conversion", ACM Digital Library, 1995. This rejection is traversed.

With respect to claims 1, 7, and 14, the subject invention differs from the Bagali et al. discussion in two key areas. First, the subject invention uses triconnected decomposition to form the component graphs. Second, the subject invention uses face loops as a means for scoring and thus sorting the embeddings. Bagali et al. teaches away from triconnected decomposition and states, "The algorithm was shown to work correctly for 3-connected planar graphs and its implementation is fairly straightforward as compared to the more complex reduction (or decomposition) process.." on page 346, section 6, first paragraph. That is, Bagali et al. generates the associated embeddings without performing the 3-connected decomposition of the

subject invention. The subject invention claims the 3-connected component decomposition as a feature in claim 1, claim 7 and claim 14. Thus, Bagali et al. does not provide the features recited in claims 1, 7, and 14 of,

“...subjecting said graph to triconnected component decomposition...”

Furthermore, Bagali et al. uses shortest length as a scoring means to rank the path between any two vertices. The subject invention examines face loops and ranks the face loops using area as one of the criteria instead of shortest length as for Bagali et al. As Bagali et al. uses shortest path for ranking, Bagali et al. cannot score the embeddings based on examination of face loops and the related surface geometry as discussed in the subject invention on page 16, section 6 and recited in claims 1, 7, and 14,

“...filling said possible **face loops** with possible surfaces to reconstruct said surface geometry;

examining geometrical acceptance of said possible surfaces and omitting embeddings including at least one geometrically unacceptable surface from reconstruction and **scoring said embeddings depending on said examination**; and

sorting said embeddings with respect to said scores to select embeddings for reconstructing said surface geometry.”

Therefore, Bagali et al. does not provide the feature of sorting using the score from face loops and the related geometrical acceptance examination that is fundamental to the subject invention.

With respect to claims 2, 3, 5, 8, 9, 11, 13, 15, 16, 18, and 20, these claims depend from the base claims 1, 7, and 14. The features of the base claims are incorporated in the dependent claims. Therefore, the distinguishing features of 3-connected decomposition and scoring using face loops are also features of the aforementioned dependent claims.

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In view of the foregoing, it is requested that the application be reconsidered, that claims 1 - 20 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at 703-787-9400 (fax: 703-787-7557; email: mike@wcc-ip.com) to discuss any other changes deemed necessary in a telephonic or personal interview.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account 50-0510 (IBM-Yorktown).

Respectfully submitted,



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